

sealing the semiconductor assembly with a resin injected into the cavity from a resin injection port of the mold, the stress caused in the lead frame preventing the semiconductor assembly from being lifted up or pushed down by the resin when the resin is injected into the cavity; and

pulling the support pin from the cavity into the mold before the resin is cured to release the semiconductor assembly from the pressure applied by the support pin.

11. (Twice Amended) A method of manufacturing a semiconductor device comprising:

placing a semiconductor assembly in which a semiconductor chip is secured to a die pad of a lead frame in a cavity of a mold;

applying a pressure to the semiconductor assembly by at least one support pin so as to cause a stress in the lead frame;

sealing the semiconductor assembly with a resin injected into the cavity from a resin injection port of the mold, the pressure applied by the at least one support pin preventing the semiconductor assembly from being lifted up or pushed down by the resin when the resin is injected into the cavity; and

pulling the support pin from the cavity into the mold before the resin is cured to release the semiconductor assembly from the pressure applied by the support pin,

wherein the support pins is caused to come in contact with a suspension lead that connects the die pad to a frame of the lead frame.

12. (Four Times Amended) A method of manufacturing a semiconductor device comprising the steps of:

supporting a heat radiator placed in a cavity of a mold with at least one support pin;

placing a die pad of a lead frame to which a semiconductor chip is secured on the heat radiator;

closing the mold;

applying a pressure in only one direction to the heat radiator by at least one support pin so as to cause a stress in the lead frame;

injecting a resin into the cavity from a resin injection port, the stress caused in the lead frame preventing the heat radiator from being lifted up or pushed down by the resin when the resin is injected into the cavity; and

pulling the support pin from the cavity into the mold before the resin is cured to release the heat radiator from the pressure applied by the support pin.

15. (Four Times Amended) A molding device for a semiconductor device comprising:

a mold which is capable of being opened or closed and is provided with a cavity for placing a semiconductor assembly which comprises a semiconductor chip secured to a die pad of a lead frame;

a resin injection port provided to the mold for injecting a resin into the cavity;

at least one support pin provided in the cavity such that the support pin is able to enter into or be pulled out of the cavity to come in contact with the semiconductor assembly in the cavity; and

an actuator which moves the support pin in a direction of the axis of the support pin such that during injecting the resin into the cavity the support pin applies a pressure in only one direction to the semiconductor assembly so as to cause a stress in the lead frame, the stress caused in the lead frame preventing the semiconductor assembly from being lifted up or pushed down by the resin when the resin is injected into the cavity, and

such that the support pin releases the semiconductor assembly from the pressure applied by the support pin after the resin is injected before the resin is cured.

24. (Twice Amended) A molding device for a semiconductor device comprising:
a mold which is capable of being opened or closed and is provided with a cavity for placing a semiconductor assembly which comprises a semiconductor chip secured to a die pad of a lead frame;

a resin injection port provided to the mold for injecting a resin into the cavity;
at least one support pin provided in the cavity such that the support pin is able to enter into or be pulled out of the cavity to come in contact with the semiconductor assembly in the cavity; and

an actuator which moves the support pin in a direction of the axis of the support pin such that during injecting the resin into the cavity the support pin applies a pressure to the semiconductor assembly so as to cause a stress in the lead frame, the pressure applied by the at least one support pin preventing the semiconductor assembly from being lifted up or pushed down by the resin when the resin is injected into the cavity, and such that the support pin releases the semiconductor assembly from the pressure applied by the support pin after the resin is injected before the resin is cured,

wherein the support pin is provided substantially on the axis of the resin injection port; and

wherein the support pin is placed at a position corresponding to suspension leads which connect the die pad to a frame of the lead frame.

REMARKS

Claims 1-9, 11-18, 20-22, 24-27, 29 and 30 are pending. By this Amendment, claims 1, 11, 12, 15 and 24 are amended.